

CLIMATOLOGICAL DATA FOR MAY, 1912.

DISTRICT NO. 5, UPPER MISSISSIPPI VALLEY.

GEO. M. CHAPPEL, District Editor.

GENERAL SUMMARY.

Generally speaking the weather of the month was uneventful. The temperature averaged higher than usual, but not markedly so, while the extremes of temperature were well within the records established in former years. More than the usual amount of precipitation occurred, but the excess for the district as a whole was slight. Moreover, there were no widespread storms of destructive character nor did the frosts of the month, where they occurred, occasion damage of importance. Over areas in the northern part of the district the month was unusually wet, some stations in Wisconsin reporting the heaviest precipitation on record for May. Thunderstorms were more numerous than usual perhaps, and in a few instances were of violent character. That on the 19th-20th at Mauston, Wis., is said to have been the worst electrical storm ever known in that vicinity, while at La Crosse, Wis., the same storm resulted in one of the heaviest rainfalls on record at that station and caused much damage. On the 8th a gale of almost hurricane proportions at South Bend, Ind., demolished a number of houses, and blew down many trees and several windmills, and a rainfall of record breaking character occurred at Des Moines, Iowa, on the 10th-11th, 0.98 inch falling in 10 minutes and 1.91 inches in 30 minutes. The 24-hour fall amounted to 4.42 inches. Perhaps the most unfavorable feature of the month's weather was the frequent wet spells, which in places greatly retarded farming operations.

The following table presents in condensed form the leading features of climatological interest for the various parts of the district:

Parts of States within district No. 5.	Temperature.				Precipitation.				
	Mean.	Departure.	Highest.	Lowest.	Average.	Departure.	Greatest total.	Least total.	Average number of days with pre- cipitation.
North Dakota.....	54.4	+1.8	90	20	4.50	+1.55	9.13	2.29	12
Minnesota.....	56.3	+1.6	92	25	4.07	+0.67	10.39	1.30	13
South Dakota.....	56.7	+1.2	84	30	4.52	+0.31	5.43	3.62	10
Wisconsin.....	56.9	+1.2	90	21	5.75	+2.10	10.22	3.02	13
Iowa.....	62.5	+2.5	92	29	3.44	-1.00	6.10	0.87	10
Missouri.....	67.1	+3.5	95	30	4.70	-0.04	7.81	3.27	10
Indiana.....	61.9	+2.3	89	33	5.58	+1.57	6.20	5.23	13
Illinois.....	64.5	+2.4	94	31	3.82	-0.24	6.58	1.78	10

TEMPERATURE.

The mean temperature for the district, 299 stations reporting, was 57.9°, or 2.1° above the normal. The means were in excess of the normal in all parts of the district, save along the northeastern border where they were practically normal. The temperature was rela-

tively highest over a belt covering southern Iowa and part of northern Illinois, where the average was from 3° to 4° above the normal. The highest monthly mean temperature, 69.2°, occurred at Quincy, Ill., and the lowest monthly mean was 48.8°, at Gull Lake Dam, Minn., the difference being slightly more than 20°, which is about the usual difference between the warmest and coolest parts of the district in May. Except for a few days near the middle of the month and at the end, the temperature averaged above the normal. In no instance, however, did unusually high maximum temperatures occur, the highest temperature being 95° at Louisiana, Mo., on the 23d. In most cases the maximum temperatures were between 80° and 90°, and occurred most generally on the 22d and the 23d. Thirty-four stations reported maximum temperatures of 90° or above. The principal cool spell covered the middle part of the month, lasting for several days. Most of the minimum temperatures of the month occurred on the 13th and 14th. The lowest temperature reported was 20°, at Hannah, N. Dak., on the 13th.

PRECIPITATION.

The average precipitation for the district, 330 stations reporting, was 4.25 inches, or 0.18 inch above the normal. From a geographical standpoint the distribution was somewhat irregular, except in the southern third of the district, but perhaps not more so than is usual in a month when a large share of the precipitation results from thunderstorms. At points in Minnesota and Wisconsin more than 10 inches of rainfall occurred, while at Carroll, Iowa, the driest point in the district, the fall was but 0.87 inch. In Wisconsin the precipitation averaged 5.75 inches, or more than 2 inches above the normal, while in Iowa the average of 3.44 inches is about 1 inch less than the normal. In the first-named State the month was one of the wettest Mays on record. There, as well as in the Minnesota and North Dakota areas, precipitation was of almost daily occurrence somewhere. In point of time the distribution was favorable, but in parts of the southern half of the district the latter half of the month was considerably drier than the first half. Twenty-five stations reported 24-hour rainfalls exceeding 2.50 inches. Most of the heavy downpours of the month occurred on the 3d, 10th, 19th, and 26th.

RIVERS.

Moderately high stages prevailed in the Mississippi River most of the month, owing to the heavy rains in the upper part of the watershed early in May. However, at the end of the month the stage in the Minnesota area was below the normal. At Dubuque, Iowa, the mean stage was 10.3 feet, the maximum stage being 11.8 feet on the 21st and 28th and the minimum, 8.6 feet on the 10th and 11th. The Illinois River at La Salle, Ill., was above flood stage from the 1st to the 28th, and as a result

farming operations in bottom lands were delayed till the 27th. At Cairo, Ill., the river passed below the flood stage on the night of the 12th-13th, and the work of removing débris and restoring conditions to their former state had not been completed on June 6.

MISCELLANEOUS.

Southwesterly winds prevailed over most of the district. The highest velocity reported was 48 miles an hour from the northeast on the 11th, at Madison, Wis. The average number of clear days was 13; partly cloudy, 10; cloudy, 8. The percentage of sunshine for the district was close to the normal. Over the region of heavy rainfall it was somewhat deficient.

THE EFFECT OF THE TIME OF OBSERVATION ON MEAN TEMPERATURES.

By C. A. DONNEL, Observer, Des Moines, Iowa.

Doubtless the subject of this item has already attracted the attention of many students and investigators. It was first brought to the writer's notice in connection with the computation of weekly mean temperatures for telegraphic transmission to the central office on Monday mornings during the crop season, the means being derived from the highest and lowest daily temperatures for the 24-hour period ending at 8 a. m., 75th meridian time. It was noted that in all instances the means computed in this manner were somewhat lower than those derived from the highest and lowest daily temperatures for the 24-hour period ending at 12 o'clock midnight of the standard of time in local use. The reason for this difference will, of course, be obvious upon reflection, as will the further fact that the difference will reach a maximum when the mean temperatures are derived from readings of the maximum and minimum thermometers which cover the 24-hour period ending at the coolest time of the day. At the close of the crop season in 1911 it was found that at Des Moines, Iowa, the average daily departure of the mean temperature from the normal for the season, March 1 to September 30, inclusive, was $+2.1^{\circ}$, the mean temperatures having been derived from the highest and lowest daily temperatures for the period ending at 8 a. m., 75th meridian time, but that the departure, with the mean temperatures derived from the highest and lowest daily temperatures for the period ending at 12 o'clock midnight, was $+2.7^{\circ}$.

This subject was also brought to notice in a second way. In tracing the mean monthly isotherms for the Iowa Monthly Climatological Report it was observed that at several points on the map the lines showed a distortion which could not be accounted for by differences

of topography, exposure of instruments, or in any other manner. It was soon noted, however, that the points where the distortions occurred were the locations of the corn and wheat region stations, where the observations for the highest and lowest temperatures are taken early in the morning and not at the time common with most cooperative observers, which is at or about sunset. To show that the differences pointed out do actually result from unlike hours of observation a computation has been made of the monthly mean maximum, mean minimum and mean temperatures for the Des Moines, Iowa, station for the year 1911, these means being derived from observations taken both at 8 a. m. and at 8 p. m., 75th meridian time. These values, together with the mean temperatures derived from the highest and lowest daily temperatures for the period ending at 12 o'clock midnight, standard of time in local use, which corresponds with 1 a. m., 75th meridian time, appear in the table herewith:

Mean temperatures at Des Moines, Iowa, for 1911.

Month.	Observations taken at 8 a. m.			Observations taken at 8 p. m.			Observations taken at 12 midnight.		
	Mean maximum.	Mean minimum.	Mean monthly.	Mean maximum.	Mean minimum.	Mean monthly.	Mean maximum.	Mean minimum.	Mean monthly.
January.....	°	°	°	°	°	°	°	°	°
February.....	31.8	11.1	21.4	33.8	13.8	23.8	31.6	11.7	21.6
March.....	36.5	19.8	28.2	37.6	22.7	30.2	36.7	21.5	29.1
April.....	50.8	27.2	39.0	53.5	30.8	42.2	51.2	30.0	40.6
May.....	57.2	38.2	47.7	58.5	39.9	49.2	57.6	39.6	48.6
June.....	76.5	54.4	65.4	77.8	56.0	66.9	76.6	55.2	65.9
July.....	89.1	65.3	77.2	90.6	66.0	78.3	89.1	65.9	77.5
August.....	88.9	65.3	77.1	89.4	66.0	77.7	88.9	65.5	77.2
September.....	84.5	62.3	73.4	85.9	63.4	74.6	84.6	63.1	73.8
October.....	76.9	55.9	66.4	79.0	57.8	68.4	76.9	57.2	67.0
November.....	58.6	41.4	50.0	59.2	43.0	51.1	58.5	42.6	50.6
December.....	40.0	21.9	31.0	42.2	24.8	33.5	40.9	23.7	32.2
Year.....	60.6	40.3	50.4	62.1	42.3	52.2	60.7	41.5	51.1

It is seen that the mean annual temperature is 0.7° lower when the observations are taken at 8 a. m. and 1.1° higher when taken at 8 p. m. than the mean based on observations taken at 12 o'clock midnight. The differences in the monthly means are least in summer and greatest in winter, which should be the case since both maximum and minimum temperatures occur more irregularly in the day in the winter season than in the summer season.

A study of the data presented herewith would seem to indicate the danger of trying to compare temperature conditions between stations when the hours of observation are not simultaneous or nearly so.

TABLE I.—*Climatological data for May, 1912. District No. 5, Upper Mississippi Valley.*

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.					Precipitation, in inches.					Sky.	Prevailing wind direction.	Observers.				
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmeasured.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
<i>North Dakota.</i>																				
Amenia.	Cass.	954	15	56.7	+ 2.1	88	9†	30	16	48	4.53	+ 1.80	1.75	0	11	9	8	14	e.	C. E. Wood.
Bottineau.	Bottineau.	1,638	17	52.5	+ 1.1	83	9	23	13	41	3.60	+ 1.43	1.20	0	14	7	8	16	nw.	W. M. Mills.
Bowbells.	Burke.	1,955	11	52.2	- 3.2	82	9	26	15†	47	5.22	- 1.29	1.29	0	12	14	3	14	nw.	G. H. Phelps.
Cando.	Towner.	1,488	11	53.8 ^a	+ 3.2	83 ^c	9	22	13	47 ^d	4.27	+ 2.23	1.57	0	12	—	—	—	nw.	E. T. Judd.
Crosby.	Divide.	1,626	6	52.8 ^b	- 2.5	82 ^c	16	29	18	38 ^e	4.68	- 1.17	0	13	—	—	—	nw.	H. C. Kirschau.	
Devils Lake.	Ramsey.	1,482	7	53.0	+ 0.3	84	9	26	13	33	3.03	+ 0.83	1.19	0	13	6	11	14	e.	U. S. Weather Bureau.
Donnybrook.	Ward.	1,760	13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	nw.	C. J. DeVore.
Dunseith.	Rolette.	15	52.8	- 0.3	81	9	24	13	39	3.94	+ 2.31	1.04	0	12	—	—	—	—	nw.	C. E. Goodsell.
Edmore.	Ramsey.	1,524	7	52.8	—	84	9	25	13	39	6.80	—	2.65	0	13	7	9	15	se.	H. R. Aslakson.
Fessenden.	Wells.	1,610	19	52.8	+ 3.5	90	9	30	16	46	4.36	+ 1.69	1.15	0	11	10	12	9	nw.	G. T. Seymour.
Forman.	Sargent.	1,249	18	59.0	+ 3.5	90	9	30	16	46	4.36	+ 1.69	1.15	0	11	9	13	9	s.	A. Maltby.
Grafton.	Walsh.	827	21	54.0	+ 1.1	85	26	29	16	39	3.05	+ 1.31	1.07	0	11	9	13	9	s.	A. R. T. Wylie.
Granville.	McHenry.	1,504	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	w.	W. A. Christianson.
Hannah.	Cavalier.	1,568	7	49.5 ^b	—	80 ^b	26	29 ^b	13	39	5.50	—	1.62	0	11	—	—	—	nw.	J. Moffatt.
Hansboro.	Towner.	—	4	53.2	—	81	25†	22	13	41	3.01	—	1.56	0	10	15	3	13	nw.	Geo. Dale.
Hillsboro.	Traill.	901	7	57.6	—	87	26	33	13	40	4.64	—	2.12	0	14	16	14	1	n.	F. E. Mayall.
Lakota.	Nelson.	1,579	6	52.0 ^a	—	80	9	27	13	35	2.29	—	0.55	0	10	9	15	7	n.	C. R. Pettes.
Langdon.	Cavalier.	1,615	17	51.0	—	79	25†	27	13	35	4.38	—	1.21	0	12	8	23	w.	J. Woolner.	
Larimore.	Grand Forks.	1,134	17	54.6	+ 2.3	88	9†	28	13	45	2.77	+ 0.73	0.45	0	15	11	10	10	n.	J. M. Freeman.
Lisbon.	Ransom.	1,091	8	57.5	+ 6.7	87	9†	28	16	57	4.09	+ 0.54	0.80	0	15	8	7	16	nw.	W. S. Adams.
McKinney.	Renville.	1,640	18	54.0	+ 1.6	86	9	23	13	44	5.43	+ 3.43	1.95	0	8	6	13	12	nw.	N. P. Swenson.
McLeod.	Ransom.	—	57.2	—	84	9	31	13	41	9.13	—	4.50	0	9	8	15	8	ne.	Martin Reinholdt.	
Manfred.	Wells.	1,605	11	54.0	—	85	9	25	13	49	5.52	—	2.00	0	11	9	10	12	nw.	P. B. Anderson.
Mayville.	Traill.	975	16	57.8	+ 2.8	90	10	32	13†	44	3.94	+ 1.29	1.30	0	12	16	5	10	n.	W. C. Gould.
Minot.	Ward.	1,557	14	54.7	+ 1.5	84	9	26	13	41	4.67	+ 2.21	1.52	0	10	10	4	17	w.	W. J. Ellison.
Minto.	Walsh.	820	19	56.1	+ 2.5	86	26	30	13†	38	3.73	+ 1.66	1.42	0	13	15	8	8	—	S. S. Marsh.
Oriska.	Barnes.	1,270	7	55.9	—	85	9	31	13	40	2.98	—	0.96	0	16	7	19	5	nw.	J. J. Taylor.
Park River.	Walsh.	998	9	55.3	—	82	9†	33	13†	39	3.97	—	1.13	0	14	8	16	7	nw.	P. J. Prochaska.
Pembina.	Pembina.	789	14	51.2	- 1.5	81	25	28	13	39	6.04	+ 3.84	1.50	0	14	15	4	12	sw.	C. W. Shumaker.
Power.	Richland.	1,020	20	56.4	+ 1.6	88	9	30	16	46	7.61	+ 5.21	2.97	0	9	10	12	9	n.	J. A. Power.
Pratt.	McHenry.	—	7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	w.	W. B. Ahern.
Towner.	do.	—	4	55.0 ⁱ	—	85 ⁱ	30	25 ⁱ	13	40 ⁱ	4.48	—	2.00	0	10	—	—	—	nw.	B. Bagley.
University.	Grand Forks.	830	20	56.1	+ 2.4	85	26	30	16	39	2.92	+ 0.38	0.78	0	13	15	10	6	nw.	U. S. Weather Bureau.
Wahpeton.	Richland.	962	20	55.4	- 1.1	88	9	32	12	44	3.93	+ 1.02	0.90	0	11	10	9	12	—	E. G. Burch.
Walhalla.	Pembina.	966	8	52.5 ^b	—	82 ^b	25	30 ^b	16	40 ⁱ	5.36	—	1.50	0	13	—	—	—	—	Ivanhoe Lee.
Westhope.	Bottineau.	—	6	54.2	—	84	16	24	13	44	4.17	—	1.46	0	7	4	19	8	nw.	W. A. Meddaugh.
Willow City.	do.	—	1,471	19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	w.	M. A. Ostby.
<i>Minnesota.</i>																				
Albert Lea.	Freeborn.	1,229	21	58.9	+ 1.0	85	22	35	14	34	2.99	- 1.26	0.55	T.	9	7	19	5	se.	Edward Carey.
Alexandria.	Douglas.	1,391	18	56.3	+ 2.2	80	9	30	5	38	7.20	+ 3.95	1.94	0	16	10	5	16	sw.	P. O. Unumb.
Angus.	Polk.	870	10	55.4	+ 3.7	87	26	28	16	43	1.91	—	0.69	0	11	9	14	8	n.	John Nadovnik.
Bagley.	Clearwater.	—	6	53.4	—	84	26	26	16	44	3.28	—	0.78	0	15	1	26	4	se.	Jens Nelson.
Baudette.	Beltrami.	1,084	1	52.6 ^d	—	81 ^d	26†	30 ^d	16	40 ⁱ	2.29	—	0.65	0	10	4 ^d	18 ^d	5 ^d	nw.	C. S. Dahlquist.
Beardsley.	Bigstone.	1,090	16	59.0	+ 2.7	85	9	30	16	43	3.14	- 0.02	0.81	0	10	7	19	5	nw.	G. L. Fitzgerald.
Beaumont.	Mahnomen.	1,200	9	55.0	—	85	25	30	12	40	3.04	—	0.60	0	13	11	10	10	s.	Dr. P. A. Slattery.
Bird Island.	Beltrami.	1,400	9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	n.	C. W. Warfield.
Brainerd.	Renville.	1,039	22	57.6	+ 1.0	80	3†	30	14	38	5.14	+ 2.04	1.90	T.	14	9	12	10	nw.	Dr. F. L. Puffer.
Caledonia.	Crow Wing.	1,215	5	56.4	—	82	25	30	16	40	10.39	—	2.56	0	14	12	5	14	sw.	Theodore Miller.
Campbell.	Houston.	1,179	19	59.4	+ 2.1	81	23	35	14	29	2.28	—	2.56	0	13	9	10	12	s.	W. D. Belden.
Cass Lake.	Wilkin.	984	6	56.2	—	85	9	33	12†	42	5.70	—	1.40	0	16	10	6	15	nw.	J. T. Neiss.
Collegeville.	Cass.	1,300	5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	w.	C. W. Burns.
Crookston.	Stearns.	1,282	19	57.4	+ 1.2	79	25	34	14†	30	7.10	+ 4.18	1.97	0	14	7	10	10	se.	Fridolin Tembreull.
Detroit.	Polk.	863	23	55.9	+ 2.5	88	26	33	13	39	2.16	+ 0.76	0.72	0	13	10	7	14	s.	A. G. Andersen.
Ely.	Becker.	1,364	16	55.0	+ 2.1	83	26	26	13	39	5.41	+ 1.77	1.36	0	17	13	7	11	nw.	G. W. Peoples.
Fairmont (near).	St. Louis.	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	nw.	Iver Wisted.
Faribault.	Martin.	1,240	25	58.6	+ 2.0	85	23	35	15	35	2.30	- 1.81	0.80	0	11	13	12	6	nw.	W. F. Werland.
Farmington.	Rice.	1,003	14	54.5	- 2.5	73	23	35	13†	24	2.24	- 1.21	0.55	0	16	10	4	17	sw.	Alice Chambers.
Fergus Falls.	Dakota.	902	24	58.4	+ 2.0	82	22	34	14†	40	3.61	+ 0.13	0.72	0	12	10	4	17	sw.	E. D. Akin.
Fort Ripley.	Ottertail.	1,210	20	57.4	+ 2.2	81	25	35	13†	34	6.02	+ 2.87	1.67	0	16	13	12	6	se.	C. E. Kissinger.
Fosston.	Crow Wing.	1,136	4	55.4	—	82	26	30	13	46	5.49	+ 2.31	1.33	0	11	14	0	17	ne.	J. J. Tucker.
Glencoe.	Polk.	1,289	25	55.2	—	84	26	32	16	38	2.20	—	0.43	0	12	11	14	6	w.	O. N. Hem.
Grand Meadow.	McLeod.	1,000	15	59.0	+ 2.4	80	27†	33	14	36	1.40	- 2.41	0.75	0	3	22	9	0	s.	F. B. Reed.
Gull Lake Dam.	Mower.	1,338	24	57.2	+ 1.7	82	23	31	14	39	2.63	- 2.21	0.63	0	12	9	12	10	se.	C. F. Greening.
Hallow.	Cass.	1,215	1	48.8	—	69	26	31	2	27	7.80	—	2.05	0	20	4	18	9	se.	U. S. Engineer Corps.
Kittson.	Norman.	815</																		

TABLE 1.—Climatological data for May, 1912. District No. 5—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.						Sky.	Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unadjusted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	
Minnesota—Continued.																			
Roseau.....	Roseau.....	1,040	3	53.0	.....	85	26	25	16	44	2.50	.....	0.60	0	13	13	14	4	se.
St. Charles.....	Winona.....	850	21	58.4	+ 2.0	81	22†	33	14	38	6.54	+ 2.85	2.08	0	13	14	8	9	se.
St. Cloud.....	Sherburne.....	1,020	35	57.8	+ 1.5	80	25	33	14†	39	6.63	+ 5.87	2.96	0	12	13	5	13	se.
St. Paul.....	Ramsey.....	940	41	59.2	+ 1.0	81	22	38	14	31	4.06	+ 0.44	1.99	0	14	8	18	5	se.
St. Peter.....	Nicollet.....	825	17	58.2	+ 0.4	84	4	33	14	41	2.85	+ 0.80	0.58	0	10	19	4	8	s.
Sandstone.....	Pine.....	.....	.....	53.8	.....	82 ^a	26	30*	14	41 ^b	6.07	.....	2.30	0	9	2	13	16	ne.
Sandy Lake Dam.....	Aitkin.....	1,284	19	52.4	+ 0.3	79	25	30	16	44	5.89	+ 2.74	0.97	0	14	14	10	10	se.
State Sanatorium.....	Cass.....	4	55.4	.....	80	9†	31	14	39	3.81	.....	1.20	0	15	8	12	11	sw.	
Stillwater.....	Washington.....	694	6	.....	.....	.....	.....	4.08	.....	1.25	0	8	24	2	5	ne.	.....	.....
Taylors Falls.....	Chisago.....	759	5	58.8	.....	81	5	33	14	40	7.62	.....	2.37	0	9	10	11	10	s.
Thief River Falls.....	Pennington.....	1,137	1	56.5	.....	88	25	28	16	52	1.77	.....	0.60	0	7	9	15	7	n.
Tracy.....	Lyon.....	.....	.....	61.6	.....	88	27	35	11	47	2.72	.....	1.10	0	10	16	3	12	se.
Warren.....	Marshall.....	859	.....	57.8	.....	90	27	31	13†	46	1.55	.....	0.72	0	5	4	23	4	.....
Warroad.....	Roseau.....	1,069	2	49.9	.....	84	26	26	16	36	2.83	.....	0.90	0	12	11	8	12	e.
Winnabago.....	Faribault.....	1,100	14	59.2	+ 0.9	87	22	34	14	53	2.34	- 2.07	0.42	0	11	11	10	10	se.
Winnibigoshish.....	Itasca.....	1,300	24	54.6	+ 2.9	82	26	30	16	40	2.79	- 0.18	0.40	0	17	10	16	5	w.
Winona.....	Winona.....	700	16	61.4	+ 1.6	85	5†	34	14	40	6.20	+ 1.46	1.84	0	15	8	11	12	sw.
Worthington.....	Nobles.....	1,593	17	56.9	+ 0.6	79	26	32	16	33	2.01	- 1.88	0.64	0	11	12	5	14	sw.
Zumbrota.....	Goodhue.....	917	16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
South Dakota.																			
bank.....	Grant.....	1,148	21	57.0	+ 1.2	84	9	30	16	42	3.62	+ 0.31	1.12	0	10	12	6	6	nw.
Sisseton.....	Roberts.....	1,202	6	56.4	.....	80 ^a	26	35	14	38*	5.43	.....	2.20	0	10	14	0	17	s.
Wisconsin.																			
Antigo.....	Langlade.....	1,489	18	53.9	0.0	89	23†	28	14	37	4.54	.....	1.04	0	10	17	1	13	w.
Barron.....	Barron.....	1,115	21	55.8	+ 2.9	79	22	32	14†	40	6.98	+ 3.09	2.15	0	10	12	16	3	w.
Beloit.....	Rock.....	750	46	59.6	+ 0.9	84	22	36	13†	38	5.09	+ 1.53	1.85	0	8	7	7	7	sw.
Big St. Germain Dam.....	Vilas.....	1,590	2	53.0	.....	82	23	25	14	43	4.02	.....	1.10	0	14	14	11	6	se.
Brodhead.....	Green.....	812	14	61.0	+ 1.8	87	23	34	13†	41	4.91	+ 1.03	1.32	0	10	13	17	1	sw.
Burnett.....	Dodge.....	880	8	56.6	.....	81	23	32	14	34	5.91	.....	1.42	0	16	6	9	16	sw.
Cottage Grove.....	Dane.....	888	1	.....	.....	86	23	30	13†	42	8.10	.....	1.65	0	17	12	11	8	sw.
Darlington.....	Lafayette.....	867	6	57.9	.....	81	23†	30	13†	42	5.36	.....	2.00	0	8	17	3	11	sw.
Deerskin Dam.....	Forest.....	1,625	2	.....	.....	87	23	31	13	35	4.18	+	1.07	0	9	14	9	8	sw.
Delevan.....	Walworth.....	920	21	58.3	+ 0.8	87	23	31	13	35	4.18	+	1.07	0	14	7	14	10	sw.
Dodgeville.....	Iowa.....	1,116	21	50.2 ^c	+ 1.4	84 ^c	23	32	13†	34 ^c	3.71	.....	1.00	0	14	14	3	11	w.
Downing.....	Dunn.....	983	10	56.4	+ 1.7	80	23†	30	17	44	6.79	+ 2.24	1.00	0	10	6	0	25	se.
Eau Claire.....	Eau Claire.....	800	21	59.1	+ 2.1	84	23	33	14	40	4.67	+ 0.30	0.89	0	14	9	15	7	sw.
Grand Rapids.....	Wood.....	1,021	13	56.6	+ 0.3	84	23	29	14	37	6.97	+ 2.80	2.01	0	17	10	10	11	ne.
Grantsburg.....	Burnett.....	1,095	21	56.8	+ 2.2	82	23	32	14†	43	8.30	+ 4.19	1.83	0	9	7	12	12	sw.
Hancock.....	Waushara.....	1,091	20	58.1	+ 1.5	85	23	31	13	37	6.66	+ 2.46	1.33	0	15	8	9	14	sw.
Hatfield.....	Jackson.....	973	18	58.8	0.0	87	23	28	14	48	4.53	- 0.10	1.00	0	14	4	12	12	ne.
Hayward.....	Sawyer.....	1,197	21	56.2 ^c	+ 3.0	79 ^c	27	41	13†	44	4.81	+ 1.24	0.85	0	12	12	4	12	sw.
Hillsboro.....	Vernon.....	1,000	21	56.8	+ 1.2	85	23	29	13†	44	5.40	+ 1.03	1.09	0	13	12	16	3	sw.
Koepenick.....	Langlade.....	1,683	21	54.0	- 0.5	82	23	28	14	43	5.09	.....	1.05	0	12	0	25	6	se.
Lac du Flambeau.....	Vilas.....	2	53.1	.....	82	23	29	14	43	5.09	.....	1.05	0	11	20	2	9	s.	
La Crosse.....	La Crosse.....	714	40	60.6	+ 1.1	84	23	35	14	34	5.88	+ 2.13	3.11	0	16	8	7	16	s.
Lake Mills.....	Jefferson.....	897	21	58.3	+ 1.3	85	23	35	14	34	5.88	+ 2.13	3.11	0	18	6	16	9	sw.
Lancaster.....	Grant.....	1,070	21	58.8 ^a	+ 0.6	83 ^a	23	33	14†	41 ^b	4.15	- 0.20	2.08	0	11	7	13 ^b	9 ^b	se.
Long Lake.....	Oneida.....	1,592	4	52.6	.....	84	23	21	14	49	4.35	.....	1.03	0	13	10	10	11	se.
Madison.....	Dane.....	974	43	58.4	+ 0.8	82	23	36	14	30	6.57	+ 2.95	1.61	0	19	7	12	12	sw.
Mather.....	Jumeau.....	962	8	56.8	.....	84	23	29	14	41	5.01	.....	1.76	0	13	11	8	12	e.
Mauston.....	do.....	882	16	55.3	- 0.8	82	23	28	13†	44	8.55	+ 4.19	3.20	0	16	13	14	4	se.
Meadow Valley.....	Clark.....	974	21	57.4	+ 1.2	85	23	29	14	42	5.58	+ 1.29	1.98	0	16	4	21	6	sw.
Medford.....	Taylor.....	1,420	23	55.4	+ 1.5	82	23	28	14	43	6.62	+ 2.36	3.43	0	13	24	4	3	s.
Merrill.....	Lincoln.....	1,267	6	56.0	.....	86	23	29	14	40	7.19	.....	1.90	0	13	14 ^b	8 ^b	se.	
Minoqua.....	Oneida.....	1,604	8	53.4	.....	81	23	29	14	40	5.08	.....	1.15	0	13	7	18	6	se.
Mondovi.....	Buffalo.....	738	4	58.2	.....	83	22	30	14	39	4.21	.....	0.89	0	16	12	10	9	nw.
Mount Horeb.....	Dane.....	1,226	8	58.2	.....	82	23	30	13	33	8.05	.....	2.14	0	13	12	6	13	nw.
Muscosa.....	Grant.....	666	3	60.4	.....	87	23	33	14	39	3.43	.....	1.40	0	14	18	3	10	ne.
Neillsville.....	Clark.....	996	22	57.0	+ 1.5	78	23	29	13	45	6.06	+ 1.82	1.35	0	8	7	22	2	nw.
New Richmond.....	St. Croix.....	990	7	58.5	.....	88	23	31	14	44	7.82	.....	2.73	0	14	7	22	2	nw.
Osceola.....	Polk.....	806	21	58.4	+ 3.8	80	28	33	14†	40	6.02	+ 1.75	2.20	0	8	8	15	5	s.
Park Falls.....	Price.....	1,492	21	55.8 ^a	.....	81 ^a	23†	28 ^a	17	44 ^b	4.68	.....	1.17	0	9	15 ^c	5 ^c	sw.	
Portage.....	Columbia.....	809	23	58.8	+ 1.1	84	23	35	13†	32	4.86	+ 0.85	0.82	0	14	19	5	7	e.
Port Edwards.....	Wood.....	969	2	56.8	.....	90	23	29	14	40	7.35	.....	2.15	0	14	11	13	7	sw.
Prairie du Chien.....	Crawford.....	690	21	60.4	0.0	83	23	32	16†	42	3.02	- 1.31	1.20	0	10	15	1	15	s.
Prairie du Sac.....	Sauk.....	750	4	60.1	.....	86	23	33	14	39	4.21	.....	0.88	0	14	4	13	14	ne.
Prentice.....	Price.....	1,551	14	58.3	+ 1.2	78	23												

TABLE 1.—*Climatological data for May, 1912. District No. 5—Continued.*

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.				Precipitation, in inches.				Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of per- cent of cloudy days.	Prevailing wind direc- tion.	Observers.			
				Mean.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.									
<i>Iowa—Continued.</i>																				
Baxter.	Jasper.	998	12	63.1	+ 2.7	90	23	33	14	37	4.39	- 0.81	2.08	0	18	13	16	2 sw.	W. R. Vandike.	
Belle Plaine.	Benton.	828	22	62.3	+ 2.8	88	23	33	14	38	5.26	+ 0.60	1.59	0	13	11	16	4 se.	S. P. Van Dike.	
Belmond.	Wright.	2	60.0			86	23	32	14	39	4.53		2.62	0	12	2	21	8 nw.	Geo. P. Hardwick.	
Bloomfield.	Davis.	5																	Albert Power.	
Bonaparte.	Van Buren.	21	64.3	+ 2.0	87	22	39	13†	32	2.14	- 1.89	0.92	0	9					B. R. Vale.	
Boone.	Boone.	1,134	7	61.4		86	22	35	14	35	6.64	- 1.62	0.68	0	9	21	5	5	C. F. Henning.	
Britt.	Hancock.	1,236	15	59.2	+ 1.2	88	22	30	14	39	2.64	- 2.90	0.77	0	12	17	11	3 se.	L. M. Goodwin.	
Buckingham.	Tama.	12																J. S. Guynn.		
Burlington.	Des Moines.	544	16	65.6	+ 1.8	88	23	38	1	30	2.15	- 1.70	0.65	0	10	20	6	5 sw.	Max E. Poppe, jr.	
Carroll.	Carroll.	1,265	22	60.4	+ 1.5	86	19†	32	14	40	0.87	- 3.09	0.32	0	6	18	7	6 nw.	Mrs. Jos. J. Wolfe.	
Cedar Rapids.	Linn.	733	30	63.6	+ 3.6	89	22	38	14	38	3.14	- 1.44	0.81	0	10	16	4	11 s.	R. S. Toogood.	
Charles City.	Floyd.	1,015	21	60.2	+ 0.7	85	23	34	14	40	2.75	- 2.17	1.11	0	10	4	12	15 s.	U. S. Weather Bureau.	
Clear Lake.	Cerro Gordo.	1,241	14	62.2	+ 2.5	85	23	40	14†	37	1.28	- 4.15	0.85	0	3	20	4	7 s.	Oscar Stevens.	
Clinton.	Clinton.	593	45															A. E. Reid.		
Columbus Junction.	Louisa.	595	11	65.6	+ 3.4	88	22	38	14	32	2.27	- 1.61	0.50	0	9	24	5	2 n.	J. B. Johnston.	
Davenport.	Scott.	580	41	64.8	+ 3.3	88	22	39	14	36	2.75	- 1.44	0.74	0	13	12	13	6 sw.	U. S. Weather Bureau.	
Decorah.	Winneshiek.	875	19	58.8	- 0.4	85	23	29	14	43	3.08	- 1.59	0.86	0	11				F. H. Baker.	
Delaware.	Delaware.	1,083	21	60.4	+ 2.1	85	23	33	14	32	3.77	- 0.42	1.00	0	13	11	18	2 se.	William Ball.	
Des Moines.	Polk.	861	34	65.0	+ 3.4	87	27	38	14	32	5.62	+ 1.06	4.42	0	9	8	15	8 s.	U. S. Weather Bureau.	
Dubuque.	Dubuque.	639	39	61.8	+ 1.0	85	23	37	14	30	5.85	+ 1.66	2.37	0	15	7	9	15 s.	Do.	
Earlham.	Madison.	10	63.9	+ 3.9	86	27	31	14	37	2.88	- 1.89	1.84	0	6	19	7	5 se.	George Phillips.		
Elkader.	Clayton.	727	33	60.1	- 0.4	86	23	30	14	44	2.87	- 1.27	1.40	0	12	17	13	1 se.	Chas. Reinecke.	
Elma.	Howard.	2	58.8			84	23	30	14	41	2.23		0.54	0	12	7	18	6 se.	H. A. Moore.	
Esterhazy.	Emmet.	1,298	17	57.6	+ 0.4	83	23	35	14	41	2.55	- 1.63	0.75	0	7	14	11	6 s.	A. O. Peterson.	
Fairfield.	Jefferson.	28	64.9	+ 4.7	87	22†	39	14	28	3.83	- 1.45	2.08	0	11	21	4	6 sw.	R. M. McKenzie.		
Fayette.	Fayette.	1,003	22															R. Z. Latimer.		
Forest City.	Winnebago.	1,236	18	60.0	+ 1.7	90	22	33	14	43	3.32	- 1.67	1.25	0	8	16	6	9 s.	J. A. Peters.	
Fort Dodge.	Webster.	1,126	12	61.6	+ 1.6	89	23	35	14	49	4.61	+ 0.06	2.30	0	8	24	1	6 n.	J. F. Monk.	
Fort Madison.	Gilman.	516	63															Miss L. A. McCready.		
Marshall.	Marshall.	1,052	13															J. L. Wylie.		
Grand Meadow.	Clayton.	1,180	21	59.3	+ 1.2	82	23	33	14	33	3.03	- 1.83	1.25	0	14	12	13	6 sw.	F. L. Williams.	
Grinnell.	Poweshiek.	1,023	20	63.5	+ 3.8	89	23	35	14	35	4.49	- 0.10	1.50	0	13	13	13	5 nw.	D. W. Brainard.	
Grundy Center.	Grundy.	976	21	63.0	+ 4.5	86	23	34	14	41	3.65	- 1.51	1.99	0	9	19	8	4 s.	J. B. Calderwood.	
Guthrie Center.	Guthrie.	1,077	17	64.0	+ 3.4	88	23	33	17	40	1.60	- 3.36	0.95	0	7	18	8	5 sw.	D. G. Beardsey.	
Hampton.	Franklin.	1,155	22	61.4	+ 3.1	86	23	36	14	40	5.39	+ 0.77	2.50	0	12	6	18	7 nw.	E. C. Grenelle.	
Humboldt.	Humboldt.	1,095	24																	
Independence.	Buchanan.	921	48	60.8	+ 1.6	84	23	32	14	30	4.43	+ 0.27	1.47	0	18	16	11	4 nw.	R. E. Dudley.	
Indianola.	Warren.	969	21	64.8	+ 4.1	86	27	38	14	31	4.31	- 0.33	3.40	0	13	8	9	14 sw.	Prof. J. L. Tilton.	
Iowa City.	Johnson.	683	52	63.0	+ 2.7	86	22	34	14	35	2.88	- 1.49	0.76	0	10	13	9	9 sw.	Prof. A. G. Smith.	
Iowa Falls.	Hardin.	1,170	19	59.4	+ 0.7	85	23	32	14	42	4.96	+ 0.76	2.07	0	8	14	6	11 s.	J. B. Parmelee.	
Jefferson.	Greene.	13	63.2			88	19†	33	14	37	1.52	- 3.49	0.55	0	9	13	12	6 se.	Ora M. Hall.	
Keokuk.	Lee.	614	41	66.6	+ 3.4	90	23	40	16	29	1.82	- 2.53	0.97	0	11	12	16	3 sw.	U. S. Weather Bureau.	
Kenoshaqua.	Van Buren.	640	20	65.8	+ 3.2	91	22	37	13	41	2.53	- 1.84	0.73	0	9	1	23	7	J. H. Landes.	
Knoxville.	Marion.	920	17	65.6	+ 3.4	89	27	38	14	33	5.49	+ 1.92	2.40	0	11	14	11	6 sw.	Casey and Bellville.	
Lacona.	Warren.	13																J. B. Alter.		
Le Claire.	Scott.	576	12															Miss M. T. Disney.		
Marshalltown.	Marshall.	947	20	63.4	+ 3.7	90	23	34	14	40	3.44	- 1.29	1.20	0	15	17	7	se.	Ralph B. Reasoner.	
Mason City.	Cerro Gordo.	1,132	15	59.4	+ 1.0	84	22	33	14	39	2.51	- 2.15	0.95	0	10	16	8	7 s.	J. S. Mills.	
Monroe.	Jasper.	648	48					36	13	36	4.79		2.15	0	11	15	11	5 s.	J. A. Dibel.	
Mount Pleasant.	Henry.	729	31	64.6	+ 2.4	88	22	31	13	39	2.11	- 2.07	0.60	0	8	16	10	5 sw.	J. W. Edwards.	
Muscatine.	Muscatine.	52																Wilton Molis.		
New Hampton.	Chickasaw.	1,169	15	59.2	+ 1.3	85	23	33	16	40	3.11	- 1.53	1.28	0	7	20	7	4 n.	A. F. Kemman.	
Northwood.	Worth.	1,122	16	58.6	+ 0.7	88	22	33	14	43	3.97	- 1.01	1.18	0	12	9	15	7 nw.	Chas. H. Dwelle.	
Olin.	Jones.	760	14	62.4	+ 2.4	87	23	34	14	36	3.94	- 0.55	1.40	0	9	15	12	4 sw.	Dr. F. W. Port.	
Osage.	Mitchell.	1,184	25	59.6	+ 2.5	83	23	34	14	40	2.87	- 1.88	0.90	0	9	19	4	8 se.	Lester Condrad.	
Oskaloosa.	Mashaka.	843	36	64.2	+ 3.8	87	23	37	14	36	3.54	- 0.14	1.78	0	10	19	4	8 sw.	Joseph Boyd.	
Ottumwa.	Wapello.	649	17	66.4	+ 3.4	92	31	40	14	31	3.20	- 1.44	1.41	0	7	21	3	w.	Chester Potter.	
Pella.	Marion.	877	10	65.2	+ 3.9	87†	27	34	14	37	4.50	+ 0.18	1.76	0	14	27	0	4 nw.	J. H. Ver Steeg.	
Perry.	Dallas.	975	11	62.8	+ 0.9	86	19	34	14	35	1.49	- 3.51	0.79	0	6	16	12	3 nw.	S. J. Brumfield.	
Plover.	Pocahontas.	1,426	16	61.0	+ 1.9	89	21†	32	14	43	3.55	- 0.72	2.65	0	4	24	4	3 nw.	J. S. Smith.	
Pocahontas.	do.	1,248	8	59.9				34	14	47	4.10		2.74	0	10	19	7	s.	F. E. Hronek.	
Ridgeway.	Winneshiek.	1,215	14	62.8	+ 2.8	86†	22	35	14	33	3.05	- 1.69	0.85	0	7	22	7	2	s.	Arthur Betts.
Rockwell City.	Calhoun.	16	64.4	+ 4.9	89	22	36	14	33	2.54	- 1.69	1.04	0	8	12	10	9 se.	C. M. Randall.		
Sac City.	Sac.	1,278	36	61.6	+ 3.0	86	19	35	14	38	2.54	- 0.47	2.90	0	12	19	11	1 sw.	E. N. Baily.	
St. Charles.	Madison.	1,070	11	64.6	+ 2.7	85	23†	38	14	36	4.45	- 0.47	2.90	0	12	19	13	2 sw.	R. D. Minard.	
Sigourney.	Keokuk.	877	16	64.6	+ 1.6	89	22†	35	17	35	2.57	- 1.56	0.85	0	10	2	28	1 s.	J. T. Parker.	
Stockport.	Van Buren.	745	19	64.6				38	13	34	3.52	- 0.24	1.57	0	15	11	5 sw.	C. L. Beswick.		
Storm Lake.	Buena Vista.	1,440	23	60.8*	+ 3.2	84†	19†	36	16	34	4.85	+ 0.97	2.43	0	9				F. K. Gregg.	
Tipton.	Cedar.	807	13	66.2	+ 5.7	89	23	40	14	32										

TABLE 1.—Climatological data for May, 1912. District No. 5—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.						Sky.	Prevailing wind direction.	Observers.		
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmeted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
<i>Indiana.</i>																				
Collegeville.	Jasper.	13	62.9	+ 1.8	89	23	33	13	37	5.22	+ 0.95	1.48	0	9	7	18	6	sw.	Otto Miller.	
Knox.	Starke.	716	7	62.8	87	23	38	13	31	5.71	-	3.04	0	13	16	9	6	s.	W. R. R. Tatman.	
Laporte.	Laporte.	810	16	61.0	+ 2.7	87	23	37	13 ^a	38	6.20	+ 2.09	1.70	0	14	12	11	5	sw.	Wm. M. Walton, Jr.
Plymouth.	Marshall.	790	9	61.0	-	85	23	36	13	32	5.30	-	1.83	0	12	12	14	5	sw.	J. W. Siders.
South Bend.	St. Joseph.	726	19	61.9	+ 2.3	87	23	37	13	31	5.47	+ 1.67	1.45	0	16	9	14	8	sw.	Henry H. Swain.
<i>Illinois.</i>																				
Aledo.	Mercer.	738	12	64.5	+ 3.2	87	22	38	13	32	1.78	- 2.29	1.01	0	7	9	17	5	s.	William B. Frew.
Alexander.	Morgan.	670	19	65.6	+ 1.8	87	23 ^b	39	13	31	5.27	+ 1.03	2.14	0	9	8	16	7	s.	George H. Hall.
Antioch.	Lake.	861	11	59.6	+ 2.2	89	23	34	14	39	3.66	- 0.24	1.30	0	8	8	13	10	sw.	J. C. James.
Astoria.	Fulton.	650	13	65.2	+ 3.1	87	22	37	13 ^a	29	4.42	+ 0.66	1.26	0	9	16	12	3	sw.	Edward V. Bohl.
Aurora.	Kane.	687	33	60.1	+ 1.0	86	22	34	1 ^c	35	5.33	+ 1.22	1.53	0	15	11	12	8	sw.	W. Holden.
Beardstown.	Cass.	448	-	-	-	-	-	-	-	-	5.08	+ 0.84	1.70	0	8	-	-	-	-	-
Bement.	Piatt.	700	5	65.2	-	89	26	36	13	35	3.55	-	0.95	0	10	16	11	4	s.	Mrs. L. M. Rice.
Bloomington.	McLean.	849	21	64.8	+ 1.6	89	23	33	13	32	4.29	- 0.28	0.87	0	9	18	4	9	s.	Rev. C. S. Adams.
Cairo.	Alexander.	359	40	68.7	+ 1.2	88	27	48	16	23	2.51	- 1.32	0.61	0	9	10	9	12	s.	Prof. H. N. Pearce.
Carbondale.	Jackson.	412	7	69.1	-	92	23	40	13	34	3.04	-	1.39	0	6	19	6	6	sw.	U. S. Weather Bureau.
Carlinville.	Macoupin.	663	22	67.4	+ 3.2	90	27	38	13	35	3.22	- 1.04	2.04	0	9	19	11	1	s.	State Normal University.
Carlyle.	Clinton.	470	27	-	-	-	-	-	-	-	4.31	+ 0.04	1.75	0	4	-	-	-	-	-
Chester.	Randolph.	380	20	-	-	-	-	-	-	-	5.46	+ 1.13	1.76	0	9	-	-	-	-	-
Clinton.	Dewitt.	727	2	64.6	-	87	23	37	13	32	4.84	-	1.33	0	12	19	9	3	sw.	F. A. Gollon.
Coatsburg.	Adams.	763	20	67.6	+ 3.5	92	23	40	16	34	2.65	- 1.45	1.65	0	7	20	7	4	s.	J. Frank Ziegler.
Cobden.	Union.	656	29	67.8 ^b	+ 0.8	91 ^b	23	41 ^b	13	31 ^b	3.64	- 0.82	1.41	0	8	14	4	13	s.	Dr. J. R. Lambert.
Dakota.	Stephenson.	929	7	59.6	-	85	23	33	13 ^c	34	2.34	-	0.88	0	11	5	23	3	sw.	John Buck.
Decatur.	Macon.	685	21	65.4	+ 2.0	88	23	35	13	34	3.25	- 0.80	1.01	0	9	18	7	6	se.	Rev. G. W. Kerstetter.
Dixon.	Lee.	725	22	63.0	+ 3.0	86	22 ^b	33	13	35	2.84	- 1.94	0.60	0	12	13	14	4	sw.	Prof. J. H. Coonradt.
Du Quoin.	Perry.	459	24	70.5	+ 3.2	90	23	41 ^b	13	39	4.27	+ 0.52	0	0	16	10	5	sw.	H. U. Bardwell.	
Dwight.	Livingston.	600	19	63.5	+ 2.2	89	23	34	13	35	4.12	+ 0.55	1.18	0	13	12	7	12	sw.	G. H. Knetzger.
East St. Louis.	St. Clair.	418	1	-	-	-	-	-	-	-	5.00	-	2.35	0	8	-	-	-	-	-
Edwardsville.	Madison.	554	13	-	-	-	-	-	-	-	3.06	+ 0.16	1.41	0	7	-	-	-	-	-
Elgin.	Kane.	716	5	61.1	-	87	23	35	13	38	3.41	-	0.88	0	14	11	16	4	nw.	W. H. Morgan.
Ewing.	Franklin.	449	1	-	-	-	-	-	-	-	4.21	-	0.93	0	13	-	-	-	-	-
Fairview.	Fulton.	733	1	-	-	-	-	-	-	-	2.63	-	1.03	0	13	-	-	-	-	-
Galva.	Henry.	842	20	64.2	+ 2.9	87	22 ^b	36	1	37	3.56	- 0.46	0.99	0	12	16	4	11	se.	Elgin Observatory.
Grafton.	Jersey.	422	19	-	-	-	-	-	-	-	4.75	+ 0.82	1.58	0	10	-	-	-	-	-
Greenville.	Bond.	635	34	-	-	-	-	-	-	-	4.48	+ 0.84	1.34	0	12	18	6	7	sw.	Ewing College.
Griggsville.	Pike.	650	27	66.2	+ 2.0	86	22 ^b	43	13 ^c	28	4.17	- 0.65	0.97	0	7	21	8	2	s.	Abram Wilson.
Havana.	Mason.	475	20	66.9	-	91	23	38	13	34	3.16	- 0.59	1.05	0	7	23	1	7	s.	Prof. F. U. White.
Henry.	Marshall.	500	24	64.6	+ 3.4	88	23	35	13	33	5.15	+ 0.90	1.30	0	11	16	8	7	sw.	R. C. Goodrich.
Hillsboro.	Montgomery.	675	18	66.6	+ 1.9	90	23	38	13	37	3.24	- 1.19	0.85	0	8	21	2	8	s.	M. S. Oudyn.
Joliet.	Will.	541	21	61.2	+ 0.5	89	22 ^b	36	13	37	3.62	- 0.27	1.10	0	11	14	7	10	sw.	George F. Kneeland.
Kishwaukee.	Winnebago.	730	24	61.0	+ 2.7	87	23	35	13 ^c	34	3.33	- 0.72	1.00	0	16	10	16	5	sw.	L. L. Eutener.
La Grange.	Cook.	657	20	59.8	+ 1.3	88	22	34	13 ^c	39	5.47	+ 1.70	1.30	0	11	14	11	6	w.	Dr. F. A. Powell.
La Harpe.	Hancock.	698	33	65.0	+ 2.1	89	22	37	13 ^c	33	2.71	- 1.63	1.08	0	10	21	9	1	sw.	Ira L. Woodward.
LaNark.	Carroll.	883	23	61.4	+ 2.5	86	23	31	13	39	3.01	- 1.41	1.36	0	13	15	11	5	sw.	F. M. Muhlig.
La Salle.	La Salle.	536	7	64.0	+ 3.2	88	23	38	13	34	3.73	- 0.19	1.19	0	13	12	10	9	sw.	George Stevens.
Lincoln.	Logan.	482	24	65.3	+ 2.3	86	3	33	13	32	4.28	+ 0.44	1.34	0	12	18	6	7	s.	Prof. F. E. Sanford.
Loami.	Sangamon.	624	12	-	-	-	-	-	-	-	4.48	+ 0.84	1.03	0	9	10	6	15	sw.	George E. Campbell.
Macomb.	McDough.	700	8	-	-	-	-	-	-	-	2.57	-	0.93	0	11	-	-	-	-	-
Manteno.	Kankakee.	711	1	-	-	-	-	-	-	-	4.57	-	1.58	0	15	22	4	5	sw.	State Normal University.
Martinton.	Iroquois.	633	25	63.8	+ 3.1	91	23	35	13	36	6.58	+ 1.77	1.30	0	12	15	9	7	sw.	J. P. Schmeltzer.
Mascoutah.	St. Clair.	425	22	68.4	+ 3.7	92	23	40	13	34	3.59	-	1.50	0	6	19	10	2	se.	Joseph H. Peltier.
Minonk.	Woodford.	745	19	65.1	+ 2.0	91	22	34	13	37	5.21	+ 1.43	1.35	0	14	18	8	9	s.	George Henrich.
Monmouth.	Warren.	784	20	64.6	+ 2.2	88	23	36	13	35	2.77	- 1.03	0.73	0	10	12	9	10	se.	M. H. Pfaffe.
Morris.	Grundy.	518	1	63.2	-	89	23	34	13	32	3.85	-	1.10	0	15	16	8	7	sw.	Dr. J. Hutchison.
Morrison.	Whiteside.	685	18	62.4	+ 2.1	84	22 ^b	35	13	33	3.35	- 1.29	1.41	0	12	14	12	5	w.	E. G. Cryder.
Morrisonville.	Christian.	638	13	65.2	+ 1.7	87	23	37	13	31	3.64	+ 0.12	1.02	0	10	18	7	6	s.	S. A. Maxwell.
Mount Vernon.	Jefferson.	511	18	66.8	+ 0.7	89	23	40	13	31	4.67	+ 0.80	1.12	0	9	18	7	6	s.	J. D. Lewis.
Nashville.	Washington.	503	12	-	-	-	-	-	-	-	3.34	+ 0.08	1.58	0	9	-	-	-	-	-
Oregon.	Ogle.	702	3	62.0	-	89	23	34	13	34	2.44	-	1.00	0	9	10	6	15	s.	Theodore P. Stelle.
Ottawa.	La Salle.	500	26	65.2	+ 3.7	88	22 ^b	37	13	30	6.13	+ 1.89	1.85	0	11	15	7	9	sw.	H. M. Potter.
Pana.	Christian.	692	26	65.8	+ 2.6	87	23	40	12 ^b	30	3.45	- 0.64	1.25	0	10	19	3	9	s.	Samuel Ray.
Pontiac.	Peoria.	609	50	64.2	+ 2.5	88	23	34	13	34	4.39	+ 0.13	1.12	0	13	4	18	9	s.	Miss Maude M. Harris.
Quincy.	Livingston.	546	10	65.2	+ 2.8	89	23	36	13	37	4.96	+ 0.72	1.17	0	15	8	17	6	sw.	C. W. Sibley.
Riley.	Adams.	481	6	69.2	-	90	23	43	13	34	3.44	-	1.14	0	9	-	-	-	-	-
Roberts.	McHenry.	956	53	59.8	+ 2.2	86	23	33	13	34	2.31	- 1.31	0.69	0	12	5	17	9	sw.	John West James.
Rockford.	Ford.	774	1	-	-	-	-													

TABLE 2.—*Daily precipitation for May, 1912. District No. 5, Upper Mississippi Valley.*

TABLE 2.—*Daily precipitation for May, 1912. District No. 5—Continued.*

TABLE 2.—*Daily precipitation for May, 1912. District No. 5—Continued.*

TABLE 2.—*Daily precipitation for May, 1912. District No. 5—Continued.*

* Precipitation included in that of the next measurement.

^a Separate dates of falls not recorded.
^b Precipitation for the 24 hours ending

Precipitation for the 24 hours ending on the morning when it is measured.

T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—Maximum and minimum temperatures at selected stations for May, 1912. District No. 5, Upper Mississippi Valley.

Date.	North Dakota.								Minnesota.												St. Paul.		Winnibigoshish.					
	Bottineau. §§		Devils Lake.		Lisbon. §§		Minot. §§		Pembina. §§		Collegeville.		Crookston. §§		Grand Meadow.		Montevideo. §§		Moorhead.		New Ulm. §§		Pine River Dam.		St. Paul.		Winnibigoshish.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	68	38	68	43	76	48	72	45	62	44	71	50	68	45	73	47	77	48	72	47	76	49	70	43	73	50	62	41
2....	63	40	57	43	78	50	72	46	61	38	73	49	73	48	75	42	78	44	77	47	81	47	73	35	78	54	71	44
3....	69	46	68	46	75	50	56	38	74	44	72	48	71	50	75	57	78	63	72	52	83	57	72	38	80	55	72	46
4....	58	48	54	48	75	52	56	43	61	42	63	55	64	52	80	56	77	56	66	52	81	58	76	52	81	59	58	45
5....	49	38	55	39	69	37	49	43	67	40	66	43	67	42	74	43	71	40	68	54	66	40	70	55	71	49	72	46
6....	56	38	54	40	60	40	54	41	55	44	65	48	55	45	71	49	69	45	60	41	68	42	69	38	70	52	68	37
7....	61	38	61	40	66	42	68	41	52	33	56	43	58	40	64	44	62	42	61	42	62	45	55	40	58	50	55	44
8....	74	46	69	37	73	37	78	41	64	40	61	46	61	40	66	43	71	48	66	40	66	49	59	43	64	52	58	48
9....	83	42	84	52	87	42	84	46	61	42	76	46	82	43	75	36	84	45	86	44	83	48	77	30	76	46	76	36
10....	63	40	59	41	60	54	62	42	52	42	75	58	58	49	69	52	69	55	68	48	71	53	74	52	70	55	70	48
11....	64	33	61	35	66	39	70	35	71	34	60	43	62	35	59	45	62	41	64	36	57	47	63	37	59	46	75	37
12....	51	31	48	32	60	34	66	28	42	34	68	39	53	41	64	36	69	35	56	36	66	40	61	28	64	39	56	33
13....	59	23	55	26	57	35	61	26	58	28	59	37	53	33	58	37	59	35	56	34	56	41	55	35	53	40	52	33
14....	67	35	60	35	64	35	68	43	42	38	50	34	58	42	57	31	62	35	60	38	55	35	59	30	53	38	54	34
15....	61	28	54	33	62	37	61	38	54	37	55	34	60	40	50	36	59	40	60	39	53	42	60	35	50	40	62	34
16....	79	35	71	38	85	28	81	40	68	41	63	36	67	34	63	39	65	35	68	33	65	37	75	44	63	38	64	30
17....	63	42	69	36	85	39	74	47	56	40	75	46	78	45	70	37	79	44	82	42	76	38	70	38	72	45	74	44
18....	59	35	55	34	67	39	64	36	52	30	73	44	65	38	63	43	64	42	60	38	64	45	54	36	66	50	64	42
19....	50	37	52	42	57	39	52	38	62	36	60	45	57	43	53	42	53	44	54	46	67	47	55	39	53	45	58	37
20....	60	41	59	42	67	47	58	45	60	41	63	39	62	40	54	41	65	46	65	45	68	41	64	43	68	38	63	45
21....	58	42	60	44	62	42	51	40	62	42	67	49	67	45	63	47	62	46	60	48	59	46	67	42	65	49	64	42
22....	49	43	52	45	72	47	50	43	52	41	74	50	62	49	51	52	66	47	75	52	60	43	81	50	58	44	63	43
23....	64	42	64	44	64	48	65	41	62	41	71	54	62	48	58	56	76	53	63	48	74	58	60	42	77	55	74	47
24....	72	39	71	44	78	38	74	38	61	42	71*	47	75	38	70	45	77	45	75	42	70	47	71	45	71	50	74	44
25....	80	45	80	49	87	48	80	47	81	42	79	53	82	46	76	45	82	52	84	51	75	50	79	56	78	54	77	45
Mns..	64.9	40.8	63.3	42.6	71.0	44.0	66.5	42.9	61.1	41.3	67.8	47.0	66.9	44.9	68.7	45.6	70.9	46.8	68.2	45.1	70.2	48.5	67.2	41.7	69.0	49.5	66.8	42.4
Date.	Wisconsin.												Iowa.												Keokuk.			
	Eau Claire.		Grantsburg.		Hancock.		La Crosse.		Madison.		Prentice.		Wausau.		Algona.		Cedar Rapids. §§		Charles City.		Davenport.		Des Moines.		Dubuque.			
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	74	48	75	45	70	43	77	48	71	42	66	40	62	44	74	48	77	39	76	50	76	49	76	53	75	49	77	52
2....	79	43	82	39	69	42	79	45	70	46	72	31	71	39	76	49	77	51	75	48	76	66	81	60	75	48	78	52
3....	83	56	80	51	79	52	82	61	75	55	72	41	70	50	82	60	83	56	81	60	83	59	79	60	82	63	83	
4....	78	54	78	44	73	52	83	62	75	54	66	42	66	46	77	60	82	61	81	62	79	65	79	62	80	50	83	
5....	74	49	75	43	66	47	74	57	76	55	64	43	60	42	73	40	78	56	74	46	76	61	73	51	77	60	79	59
6....	73	50	68	44	79	47	77	53	79	54	66	40	72	41	73	46	81	55	77	52	83	58	76	53	79	58	85	62
7....	71	49	63	47	77	51	71	51	75	53	66	42	70	45	74	49	75	57	66	49	80	57	73	56	75	53	80	59
8....	59	49	63	46	66	44	67	48	68	46	62	42	64	44	70	46	71	48	68	46	74	51	77	50	68	48	79	52
9....	77	37	77	35	75	35	76	42	69	45	62	30	69	35	80	45	79	45	78	38	74	50	80	51	75	45	77	52
10....	75	49	75	57	75	52	75	55	72	50	72	51	76	50	72	57	70	48	68	55	76	55	76	58	69	55	75	54
11....	63	48	65	43	59	45	59	46	62	43	72	45	70	45	60	46	60	58	58	47	67	47	59	48	62	46	74	50
12....	65	39	64	33	58	40	64	43	54	40	52	34	57	34	59	43	60	45	63	41	60	43	64	44	61	45	62	46
13....	55	40	54	36	56	31	58	38	57	40	50	31	57	34	59	43	60	41	58	39	67	42	59	45	60	40	68	41
14....	55	33	51	32	55	32	60	35	55	36	50	27	55	30	55	34	63	33	59	34	61	39	62	38	58	37	63	45
15....	50	43	50	39	55	43	58	45	58	44	50	38	51	31	50	38	55	42	53	40	61	46	52	42	59	45	65	44
16....	65	37	61	32	56	40	64	44	50	42	60	31	63	34	62	41	60	45	61	44	53	45	60	45	54	45	64	40
17....	71	35	75	34	70	35	71	39	68	43	65	29	61	30	73	39	70	42	70	36	69	42	70	40	68	40	69	43
18....	69	54	67	50	73	53	71																					

TABLE 3.—*Maximum and minimum temperatures for May, 1912. District No. 5—Continued.*

Date.	Hannibal, Mo.		Laporte, Ind.		Illinois.															
					Cairo.		Greenville.		La Salle.		Monmouth.		Mount Vernon. §§		Peoria.		Springfield.		Winnebago.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1.	79	51	65	45	76	53	.....	.....	71	47	74	48	78	47	73	49	75	51	74	40
2.	82	66	70	49	83	62	.....	.....	73	52	77	56	85	57	76	59	80	61	74	56
3.	84	62	78	53	78	65	.....	.....	82	58	83	58	81	58	83	62	82	61	81	54
4.	83	63	77	52	80	64	.....	.....	79	62	81	58	82	57	82	62	83	64	78	56
5.	81	60	83	53	80	68	.....	.....	79	60	78	51	84	67	77	57	79	62	79	60
6.	86	63	84	46	75	65	.....	.....	82	57	83	54	79	63	84	55	83	59	84	49
7.	80	57	79	52	79	63	.....	.....	79	57	80	55	81	59	79	58	80	59	79	56
8.	79	53	74	46	81	63	.....	.....	75	52	77	46	81	51	76	48	80	56	69	45
9.	77	52	66	37	79	64	.....	.....	72	46	78	44	78	56	73	44	74	54	73	39
10.	77	60	71	40	80	61	.....	.....	77	53	76	50	78	54	77	52	76	54	75	48
11.	71	49	77	48	74	60	.....	.....	74	46	75	50	76	56	73	48	72	49	68	46
12.	61	45	48	37	59	53	.....	.....	53	42	60	42	54	48	55	42	54	45	55	40
13.	70	42	62	37	65	52	.....	.....	64	38	69	36	66	40	67	34	68	44	63	35
14.	63	47	58	40	65	57	.....	.....	59	41	62	39	67	46	60	43	64	49	59	35
15.	65	45	56	46	67	53	.....	.....	64	48	65	49	70	49	66	42	62	48	66	45
16.	52	44	53	43	61	48	.....	.....	53	46	58	39	61	47	55	39	55	44	53	42
17.	69	45	65	42	70	50	.....	.....	70	44	70	48	70	45	68	41	70	46	69	38
18.	82	49	77	45	74	56	.....	.....	80	51	78	49	76	48	78	49	79	51	78	49
19.	85	57	71	41	81	60	.....	.....	78	44	85	50	84	54	83	49	84	56	65	40
20.	86	67	79	61	81	63	.....	.....	82	61	84	62	83	56	84	64	86	62	78	45
21.	86	65	84	54	84	64	.....	.....	85	59	87	62	85	57	86	64	86	61	71	49
22.	88	67	86	61	85	67	.....	.....	86	66	87	62	87	60	87	65	88	64	87	53
23.	91	71	87	61	87	69	.....	.....	88	69	88	62	89	62	88	67	88	66	88	68
24.	82	63	82	60	87	66	.....	.....	79	60	81	60	84	63	80	61	83	67	78	55
25.	81	64	77	50	78	66	.....	.....	80	56	82	51	84	63	82	57	82	62	81	50
26.	79	66	83	51	84	66	.....	.....	84	58	85	55	85	62	84	59	84	63	84	52
27.	85	62	85	64	88	68	.....	.....	83	64	76	68	87	66	86	59	86	68	83	64
28.	78	63	79	60	76	62	.....	.....	80	61	79	60	80	63	78	60	80	61	80	60
29.	71	57	69	41	72	60	.....	.....	61	48	69	51	74	59	60	49	63	52	65	45
30.	74	52	69	42	67	56	.....	.....	70	48	76	44	67	55	72	43	69	52	80	43
31.	80	57	80	46	81	58	.....	.....	79	53	82	52	81	50	80	50	80	52	82	50
Mean.....	77.6	56.9	73.4	48.5	76.7	60.7	.....	.....	74.9	53.1	76.9	52.3	78.0	55.6	75.9	52.6	76.6	56.2	74.2	48.6

^a, ^b, ^c, etc., indicate respectively 1, 2, 3, etc., days missing from the record.

§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.